

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1-2A. These (2) sheets, which includes Figs. 1 and 2, replaces the prior (3) sheets including Figs. 1, 1A, 1B, 2 and 2A.

Attachment: (2) Replacement Sheets

Remarks

Claims 1-5, 7-9 and 15 are pending in the application, of which claims 1-5, 7-9 and 15 are rejected. The drawings have been objected to by the Examiner. Applicant traverses these rejections, however by this paper Applicant has amended claims 1, 2, 4 and 7, and withdrawn Figures 1A, 1B and 2A, to further prosecution. Additionally, Applicant has amended the specification to correspond with the drawing amendments.

Drawing Objections

The Examiner has objected to the drawings, stating that "there is no adequate support for such a notch or for an axially extending discontinuity in the original application." (Page 2 of the Office Action of October 14, 2009). And "Figure 1 uses the label 11 and does not show a notch or an axially extending discontinuity." *Id.* Applicant respectfully disagrees. The notch/discontinuity 11 is present in Figure 1. Below is a portion of Figure 1 as originally filed.

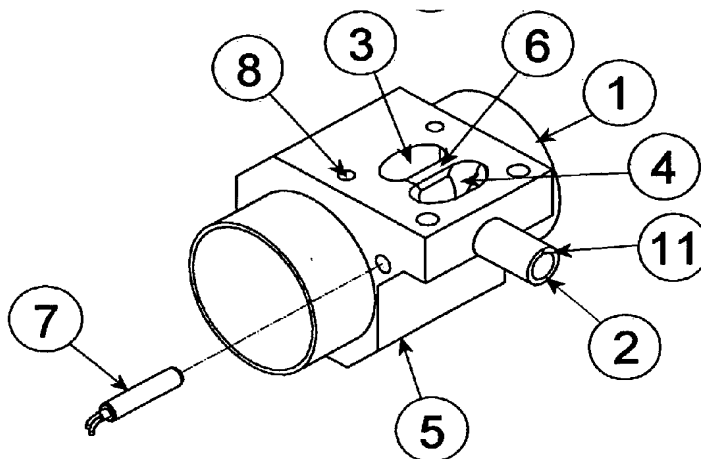
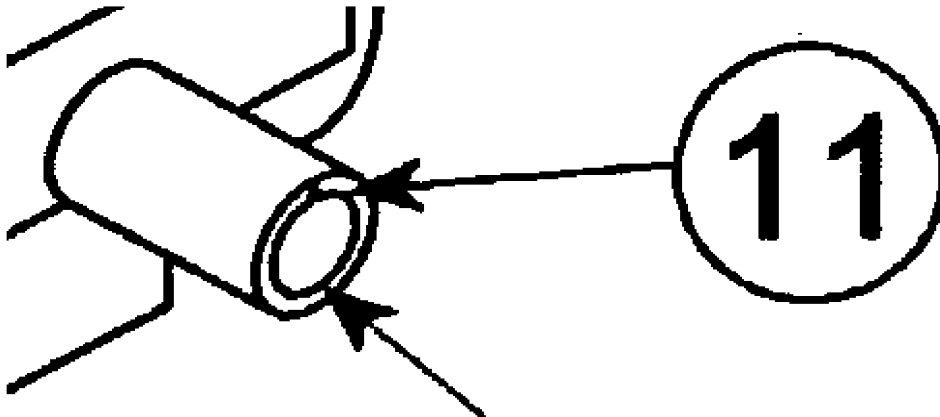


Figure 1.

A closer examination of Figure 1 illustrates the notch/discontinuity 11 formed on an upper portion of the downstream connector 2, as shown below.



Applicant discloses "[w]ith reference to Figure 2, . . . the down stream connector plain outlet type nozzle (2) can be optionally contoured on the upper portion of said nozzle, as shown (11) to help assist in unlocking any held-up medium in the nozzle when the valve is closed in order to promote rapid free draining of the nozzle." (Specification at page 6, starting at line 5, as amended by this paper). The Examiner states "[i]n particular, Figure 2 is ambiguous since the upper part of nozzle 2 is shown as being the same as the lower part, which does not have a notch". (Page 2 of the Office Action of October 14, 2009). Applicant respectfully disagrees. The upper and lower portions of the downstream connector are not shown as being the same in Figure 2. Figure 2 as filed is illustrated below.

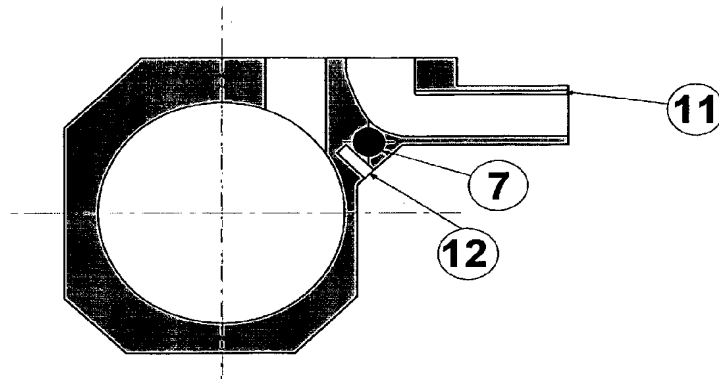
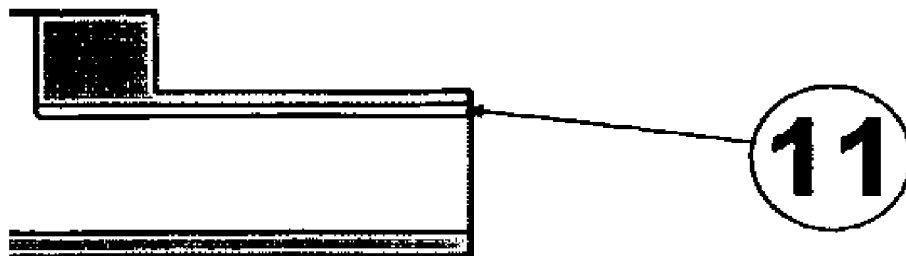


Figure 2.

A closer examination of Figure 2, illustrates the notch/discontinuity 11 axially extending along the length of the downstream connector.



By this paper applicant withdraws Figures 1A, 1B and 2A which were added in the amendment filed on January 16, 2009, to further prosecution. The remaining Figures 1 and 2, previously presented in the amendment of January 16, 2009 are clearer reproductions of Figures 1 and 2 as originally filed and do not present new matter. Replacement Figure 2 is shown below and illustrates the notch/discontinuity formed on the upper portion of the downstream connector 2.

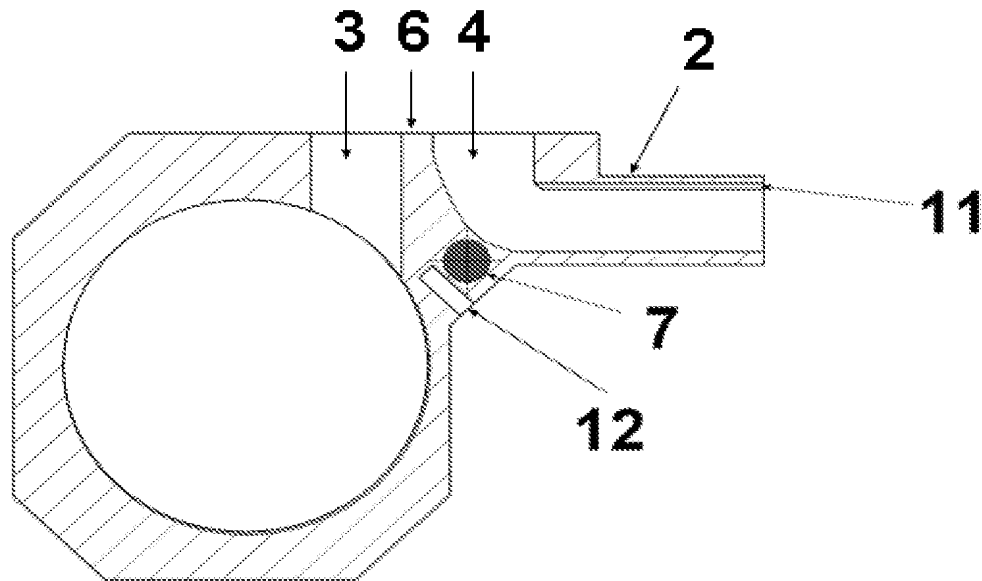


FIG. 2

Claim Rejections - 35 U.S.C. § 112

The Examiner has rejected claim 4 under 35 U.S.C. § 112 first paragraph, for written description. Claim 4 as amended recites "[a] valve as set forth in Claim 3 with an downstream connector contoured and smooth to promote free draining including a small discontinuity to break surface tension." Claim 4 as amended recites Claim 4 as originally filed, therefore satisfying 35 U.S.C. § 112 first paragraph, for written description.

Claim Rejections - 35 U.S.C. § 102(b)

Claims 1-5, 7-9 and 15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Miyamoto et al. (US 5,520,001).

Claim 1 has been amended to specify liquid communication. Claim 1 requires a "valve body . . . for providing a defined liquid flow path . . . having a downstream void in liquid communication with the downstream connector". Applicant discloses that a "typical application for the cleanable heated valve is in process industries that require a supply of high purity water . . . supplied at various flow rates". (Page 1, lines 12-20, emphasis added). Other examples disclosed include "the transfer of food products" and "the transfer of a product that is a liquid" and "liquids that tend to create cleaning difficulties". (Page 2, lines 6-10). Applicant also discloses that "the downstream connector can be contoured and smooth to promote free draining including a small discontinuity to break surface tension, to further aid draining." (Page 4, lines 24-26, emphasis added). Surface tension is a property of the surface of a liquid, and does not relate to gases. Miyamoto et al. teaches a vapor controller for vaporizing a liquid into a gas. (Miyamoto et al., Col. 2, lines 54-62). The vapor controller includes a "liquid material inlet passage 4 . . . so as to introduce a liquid material LM into a vaporizing chamber 21" and a "gas outlet passage 5 . . . to lead a gas G generated in said vaporizing chamber 21 out of the body block 1a." (Miyamoto et al., Col. 5, lines 30-44, Fig. 1). Since Miyamoto et al. teaches a vapor controller for generating a gas and not a liquid, claim 1 is not anticipated by Miyamoto et al.

Further, claim 1 requires "a smooth and contoured unitary valve body with an integral upstream connector, downstream connector". The Examiner relies on Miyamoto et al.'s joints 13 and 14 for satisfying this limitation. (Page 3 of the Office Action of October 14, 2009). Miyamoto et al. teaches "[r]eference numerals 13, 14 designates a joint connected with said liquid material inlet port 6 and said gas outlet port 11, respectively." (Miyamoto et al., Col. 5, lines 42-44, Fig. 1). Since Miyamoto et al. teaches connected joints and not integral connectors, claim 1 is not anticipated by Miyamoto et al.

Additionally, claim 1 requires "an elongated heater mounted adjacent to the downstream connector . . . said heater being operative to locally heat the downstream void and the downstream connector". The Examiner relies on Miyamoto et al.'s heater 2 for satisfying this limitation. The Examiner states "[h]eater 2 on the right side of Figure 1 will inherently heat the downstream void." Miyamoto et al. teaches "body block 1a is provided with a temperature sensor 3, such as cartridge heater 2 and thermocouple, heating the whole body block 1a".

(Miyamoto et al., Col. 5, lines 23-26, emphasis added). Miyamoto et al. does not teach "locally" heating, therefore claim 1 is not anticipated by Miyamoto et al.

Claims 2-5 depend from claim 1, and are not anticipated by Miyamoto et al. for at least the reasons stated above with reference to claim 1.

Further, claim 4 as amended requires "an down stream connector contoured and smooth to promote free draining including a small discontinuity to break surface tension." Miyamoto et al. does not address surface tension, nor a discontinuity to break surface tension in the downstream connector. Miyamoto et al. does not teach all of the limitations of claim 4, and claim 4 is not anticipated thereby.

Claim 7 has been amended to claim a valve for liquid communication. Claim 7 requires a "valve body . . . for providing a defined liquid flow path . . . having a downstream void in liquid communication with the downstream connector". As stated above for claim 1, Miyamoto et al. teaches a vapor controller for generating a gas and not a liquid, and therefore claim 7 is not anticipated by Miyamoto et al. Further, claim 1 requires "a smooth and contoured unitary valve body with an integral upstream connector, downstream connector". As also stated above for claim 1, Miyamoto et al. teaches connected joints and not integral connectors, and therefore claim 7 is not anticipated by Miyamoto et al. Claim 7 also requires an elongated heater . . . operative to locally heat the downstream void and the downstream connector". As stated for claim 1, Miyamoto et al. does not teach "locally" heating, and therefore claim 7 is not anticipated by Miyamoto et al.

Further claim 7 as amended requires "an elongated heater mounted between the upstream void and the downstream connector". As illustrated in Figure 2, the heater 7 is mounted between the upstream void 3 and the downstream connector 2. The Examiner relies on Miyamoto et al.'s inlet port 4 and joint 14 for satisfying Applicant's upstream void, and downstream connector, respectively. (Page 3 of the Office Action of October 14, 2009). Miyamoto et al.'s heater 2 is mounted above the inlet port 4 and joint 14, and not "between" as claimed. (Miyamoto, Fig. 2). Therefore Miyamoto et al. does not anticipate claim 7.

Claims 8 and 9 depend from claim 7, and are not anticipated by Miyamoto et al. for at least the reasons stated above with reference to claim 7.

Claim 15 requires the "valve body is provided with a cavity forming a thermal break between the heater and the upstream connector for limiting heat conduction to the upstream void and the upstream connector and for maximizing achievable temperature in the downstream void and the downstream connector of said valve." Figure 2 depicts a cross sectional view of the clean line heated valve and illustrates a cavity 12 between the heater 7 and the upstream connector. The Examiner relies on Miyamoto et al.'s openings 8 and 10 for satisfying the cavity limitations. (Page 3 of the Office Action of October 14, 2009). The Examiner states that "[h]eater 2 on the right side of Figure 1 will inherently heat the downstream void." *Id.* And that "[t]he cavities 8 and 10, and the cavity holding sensor 3 on the left, will inherently reduce heating of the upstream connector by the rightmost heater 2." *Id.* Such functionality is not taught by Miyamoto et al. An Examiner must provide rationale or evidence tending to show inherency. (MPEP 2112 § IV). "Inherency, however, may not be established by probabilities or possibilities." *Id.* Without providing any rationale or evidence to support such an inherency claim, the Examiner's inherency claim fails. Miyamoto et al. teaches openings 8 and 10 for fluid flow, and not a cavity forming a thermal break. (Miyamoto et al. Col. 5, lines 30-40). Miyamoto does not teach "limiting heat conduction . . . upstream . . . and maximizing . . . temperature . . . downstream" as claimed; rather Miyamoto et al. teaches "heating the whole body block 1a". (Miyamoto et al., Col. 5, lines 23-26). Therefore, claim 15 is not anticipated by Miyamoto et al.

Claim Rejections - 35 U.S.C. § 103

Claims 1-5, 7-9 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto et al. in view of Nagano (US 6,006,701).

The Examiner relies on Miyamoto et al. for satisfying all claims. Alternatively the Examiner relies on Nagano's heater H for satisfying the elongated heater limitation of claims 1, 7 and 15. (Pages 3 and 4 of the Office Action of October 14, 2009). As stated above regarding

limitations other than the shape of the heater; claims 1-5, 7-9 and 15 are not anticipated by Miyamoto et al. and therefore the Examiner's obvious rejection fails to satisfy all claim limitations.

Further, claims 1 and 7 as amended specify a valve with a liquid output. Independent claims 1 and 7 require a "valve body . . . for providing a defined liquid flow path . . . having a downstream void in liquid communication with the downstream connector". Both Miyamoto et al. and Nagano teach valves that receive a liquid and vaporize the liquid to output a gas. The Examiner's combination of Miyamoto et al. and Nagano does not teach or suggest a liquid output. Therefore independent claims 1 and 7, and their respective dependent claims 2-5 and 8-9 are not obvious over the combination.

Claims 1, 7 and 15 of Applicant's clean line heated valve require "a smooth and contoured unitary valve body". Both Miyamoto et al. and Nagano teach away from such a cleanable valve design. In Applicant's background section some problems with using the prior art valves for hygienic industries are described. "The valves covered in the above mentioned patents comprise of internal joints, crevices, sliding grooves and attachments." (Page 2, lines 30-33). "The resulting nooks and crannies provide areas for product to lodge, harbouring microbiological contamination and creating difficulties for cleaning." *Id.* Miyamoto et al. teaches a metal ring spacer 17 surrounding the groove 16 and within the path of fluid/gas flow. (Miyamoto et al., Col. 5, lines 63-66, Fig. 3). Such a ring spacer would likely provide an area for product to lodge, harboring microbiological contamination. Nagano illustrates various gaps and recesses within vaporizer 10 where product could also potentially lodge (Nagano, Fig. 1B). For example gaps are shown between the bottom of valve member 50 and intermediate member 30, and between flange 52 and intermediate member 30. Both Miyamoto et al. and Nagano teach away from a smooth and contoured unitary body, and therefore the Examiner's combination fails to render claims 1, 7 and 15 obvious.

Claim 15 requires a "heater being operative to locally heat the downstream void and the downstream connector portion . . . [and] a cavity forming a thermal break . . . for limiting heat conduction to the upstream void and the upstream connector and for maximizing achievable

temperature . . . downstream". Both Miyamoto et al and Nagano teach heating the whole valve. Miyamoto et al. teaches a "cartridge heater 2 and thermocouple, heating the whole body block 1a". (Miyamoto et al., Col. 5, lines 23-26). Nagano teaches "[t]he whole of the vaporizer 10 is held at approximately the same temperature by heating with the heaters H. (Nagano, Col. 4, lines 27-29). Both Miyamoto et al and Nagano teach away from limiting heat conduction upstream within their valves, and therefore the Examiner's combination fails to render claim 15 obvious.

Conclusion

In view of the foregoing, Applicant respectfully asserts that the application is in condition for allowance, which allowance is hereby respectfully requested.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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